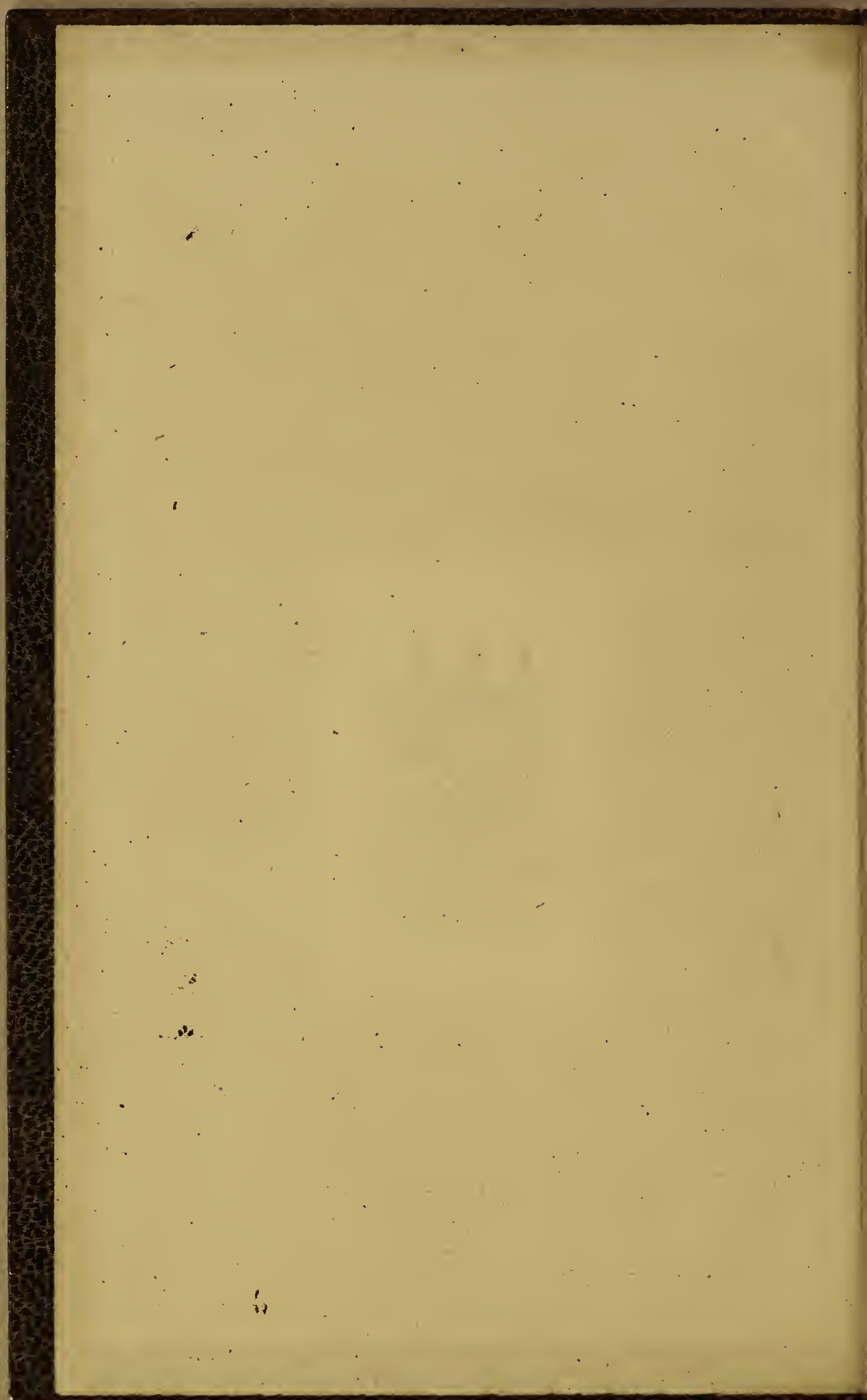


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THE SIXTH ESSAY

ON

FIELD-HUSBANDRY,

As it is, or may be ordered in
New-England.

By JARED ELIOT, A. M.

The Tree of the Field is Man's Life. Deut. xx, 20.

Fruitful Trees and all Cedars, praise the Lord. Ps. cxlviii, 9.

*I planted me Vineyards, I made me Gardens and Orchards,
and I planted Trees in them of all Kind of Fruits. Eccl. ii, 4. 5.*



NEW-HAVEN:

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LEWIS & CLARK

CONTINUATION
OF THE
ESSAY ON
FIELD-HUSBANDRY.



 HEN I first apply'd myself to the writing essays upon field husbandry, I did not expect those small tracts, calculated to our soil, meridian, & climate, would ever extend farther than to a small circle of neighbours; but, they having found the way to *England*, and being approved of there; and the design being encouraged by gentlemen of great worth, who were so good as to send me over a great variety of seeds, both of grass, and grain, and to favour me with their council, and valuable assistance; with such encouragement from abroad, and at home, I designed to go on, to publish an essay, on that subject, yearly; but, the war coming on, which naturally and necessarily engaged our attention, both in the dark and bright scenes of it, so as to leave but little room for any thing, but what is absolutely necessary, and especially so, as we are all military men, as well as farmers; our circumstances] being like

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that of the old *Romans*, from the plow to the war, and from the war to the plow again; there having been so many of our labouring people draughted out yearly, ever since the commencement of the war, no less than five thousand the last year, besides lesser excursions, which takes off men from their husbandry business; which, together with heavy charges consequent upon it, renders it neither safe nor prudent, to leave the old beaten paths, for new inventions, for, having neither hands nor money to spare, for the prosecution of any new schemes, or untry'd methods, I have given over writing; unless it be something that can be done in a little time, and with a very small expence, the advantage of which may be of long continuance, and of great benefit, such as planting of fruit-trees, and other useful trees: As trees are soon planted, but take a considerable time before they come to maturity, it may be very proper, even, altho' the war yet continue, to set ourselves about it with due application. I shall begin with the Mulberry tree; as we have but few of this kind, the planting great numbers of them is a subject of great importance, and is a part of husbandry that will be much to our honour, and advantage; for the land we improve this way will become more useful and profitable to ourselves, & posterity, & render us more serviceable to our mother-country, and gain their attention, esteem, and regard; as will appear by the transactions of *The society established at London, for the encouragement of arts, manufactures, and commerce.*

This society have offered premiums, for the encouragement of many things, very useful, both
at

at home, and in the plantations, in *North-America*; have pointed out *Georgia*, *Pennsylvania*, and *Connecticut* for the production of silk, and have offered premiums for encouragement; but this matter will stand in a much better light, and carry with it more weight, if I cite their own words; the society say:

‘ That the production of silk in our *American* colonies, being undoubtedly a proper object of encouragement, as it must tend greatly to the advantage of those colonies, and prove highly beneficial to the mother-country, by promoting a very valuable branch of its manufacture; in order to forward the same, by such bounties as may operate in equal proportion, to the benefit of the poorest, as well as the richest planter, the society propose to give, for every pound weight of cocoons, produced in the province of *Connecticut*, in the year 1759, of an hard, weighty, and good substance, wherein one worm only has spun, *Three Pence*, for every pound weight of cocoons, of a weaker, lighter, spotted, or bruised quality; tho’ only one worm has spun in them, *Two Pence*; for every pound of cocoons, produced in the same year, wherein two worms are interwoven, *One Penny*.

‘ *N. B.* These premiums will be paid under the direction of the Rev. Mr. *Thomas Clap*, and Dr. *Jared Eliot*, of *Connecticut*, on condition that a publick filature be established in *Connecticut*, under the direction of the said gentlemen, that each person bring his or her balls, or cocoons, to such publick filature.”

This generous offer, of this honourable society,

(those

(those true patriots) finds us, of this colony, not so fully prepar'd, by reason of the scarcity of Mulberry trees, to take all the advantage of such a noble encouragement, as they and we could wish; so that we must crave their patience, till we are prepar'd, to reap the advantage, and more fully answer their reasonable expectation. This invitation is not to a business to which we are wholly strangers, it is not to an empty, airy, and untry'd project; for there has been something of this manufactory carried on for sundry years, and by a number of our people, in divers of our towns, by which we are assured that it is practicable.

So those who do not understand the manner of breeding and feeding silk worms, may easily attain the skill from those, who by long practice are enabled to inform them; for, indeed, that part is very easy; the winding of the balls is more difficult, but this is to be performed by those who have more skill, and who by long use, and being well furnished with proper engines and implements for that service, can do it better, and in less time. Thus, being freed from this more intricate and difficult part of the work, we may give our whole attention to the feeding the worms, till the silk balls are completed, which are then to be carried to the *filature*, or silk house, where the money is to be paid. This method will be very much to our advantage; for, the silk balls must be wound off in a little time after they are formed; which, if neglected too long, the silk will not be so good, when it is manufactur'd, the threads will be uneven, as if full of small knots, nor will it appear with equal lustre and bright-

brightness, this I know by certain experience; and farther, the winding of the first crop of silk balls will be an hindrance to the raising a second stock of silk, which, I suppose, the length of our summers will well admit of. It is design'd that the next season shall determine that point, and render that certain, which, at present, is but probable. If we were furnished with a sufficient number of Mulberry trees, conveniently planted, this colony, which is so populous, might produce a vast number of silk balls. The colony of *Georgia*, which is so new and small, hath advanced greatly in this business, as appears by the account of the loss they sustain'd the last year; their *filature*, or store-house for silk, unhappily taking fire, was consumed, together with a quantity of raw silk, and (if I remember right) eight thousand weight of cocoons, or silk balls. If they had hands, and trees sufficient, they might increase from eight thousand, to an hundred thousand; this is a production that may be enlarged, and carried to what height we please; and Providence favouring our labours; it may be extended in proportion to our want of returns, for goods we draw from *Great-Britain*.

A little ground, planted with Mulberry trees, under prudent management, would afford leaves for feeding a great number of silk worms. Capt. *Meigs*, in my neighbourhood, has but two trees, which are, by measure, but three feet and four inches in girth, or, as we commonly say, about a foot over, each, these two trees, he tells me, will afford leaves, without impairing or hurting the trees, to feed four thousand silk worms.

That,

That, as far as experience in little essays will enable a person to judge of greater works of the same kind, he makes no question, but that where the trees are near, one person can feed and tend one hundred thousand worms thro' the whole season, from the time of hatching, to the time of winding up, which is six weeks.

The family, which I have been speaking of, have made silk many years, so far as two trees would enable them, for their own use; knowledge and experience, altho' it be of things in miniature, yet is very valuable, from which many consequences of great importance may be drawn, with a good degree of certainty.

As I have turned my thoughts on this subject of making silk, I had a fear which sat very heavy upon me, which seem'd to be an insuperable difficulty; which was, that robbing the trees of their leaves yearly, would first distemper, and finally kill the tree; and keep us in a continual round of planting and destroying, to our great discouragement. For, as there is an analogical agreement between vegetables and animals, as the tæculent matter, impurities of the blood, and other juices, which are not fit for nourishment, are cast out by the guts, or carried off by perspiration, by the lungs, and thro' the skin, from the body of man and beast; so the impurities of the sap of trees, and other plants, exude thro' the bark, and more abundantly are cast off by the leaves: If a tree become hide bound, and overgrown with moss, the tree will not thrive; if the leaves of trees, or bushes, are constantly stripped off, or cropped by goats or other cattle, the plant will die.

It has been found by experience, that a branch of a tree put into a retort, or large wide mouth'd bottle, and luted, or stopp'd up from the air, after a while, there will be found in the glass, a great deal of thick slimy ropy matter; this gross foul matter being shut up, and retained in the mass of the sap, & finding no vent, the leaves being plucked off, the tree will be strangled and die; so that, as a learned man has observ'd, one great difference between plants and animals is, that the lungs and guts of animals are found in the inside, and in plants or trees, they are on the outside.

After I had revolved these things in my mind, I informed Mr. *Meigs* of my doubts and fears on this head, (he being a judicious and observing man) I desired him to give me his opinion on that particular; to which he reply'd, that there was indeed a great deal of danger; that prudence and caution was necessary; that we must not be too eager at first, nor deprive the tree of its leaves very much, at our first entrance on that work; and must use moderation for a time, till the tree was got used to it; but when, (as his phrase was) the tree was used to it, we may then grow bold, and use a greater freedom. He told me, that by an error of this kind, he had destroyed a fine young tree; that his trees would bear the hardships now, which would have been destructive in the beginning.

This was a doctrine I did not understand, I knew that man and beast might by habit and custom be enured to bear hunger and thirst, heat, cold, and nakedness, beyond what is common; but the application of this, to trees, was to me quite

quite unintelligible ; going out abroad, the sight of the trees unveiled the mystery ; I observ'd that the tops of the trees and branches were thick set with small twigs, like fringes, and huddled together in a confused manner : It filled me with wonder, to see the wise provision of nature reduced to extremity, occasion'd by picking away the leaves ; the sap thrusting on, and finding the former outlets shut up, (the leaves being taken away) was under the hard necessity of putting out new leaves, and small sprigs. If you give the tree time, there will be this provision, if you drive too fast you spoil the tree. I must confess, this is all new philosophy to me, and opens a new scene of wonders ; and is the more pleasing, as it has a favourable aspect upon the silk manufactory. The reader may think that I have dwelt too long on such a minute article, perhaps I have ; but if he is willing to foregoe his time and pains, to save the life of one Mulberry tree, I am willing to give mine.

As the Society, established at *London*, have offered such encouragement, and have so kindly invited us to apply ourselves to the raising silk ; gratitude and interest obliges us to improve such a favourable opportunity ; more especially, as they have display'd such wisdom, goodness, and care, in the offer of their favour, to those colonies which are destitute of any staple commodity, suitable to make an immediate and direct return to *England*, for such goods as we want, and must always want more abundantly than we have means at present, by which we can refund : This seems to be the state of *Georgia*, *Pennsylvania*, and *Connecticut*.

The

The colony of *Carolina* is in possession of a good and valuable staple; their rice and indigo. *Virginia* and *Maryland* have for a long time enjoyed the large tobacco trade; the province of *New-York* is well situated for, and has been enriched by the fur trade; the eastern governments have well, within their reach, the advantage of such a fishery, which has been very profitable, and may, in time of peace, prove more valuable than the richest mines of silver and gold, when they shall quietly enjoy the best fishing ground in the known world.

The people of this colony have a trade to the *British* sugar islands; a coasting, continent, plantation trade, which is to the increase of shipping, and is a nursery for seamen: this trade in a circular course, and in the end, centers in *Great Britain*, and is of some advantage; yet, after all, something is wanting, by which we may have a direct trade to *England*; the Society has pointed out the way and means.

The colony of *Georgia*, I presume, would not continue, and increase their silk trade, if they did not find it a profitable branch of business; doubtless they find their account in it.

Those, among us, who raise silk, say, that it is more profitable than other ordinary business. As this affair has been the subject of my thought and inquiry, as I had opportunity, so I should have enquired much more, if I had then thought of writing upon that article.

Some years past, I asked a man of good faith and credit, who had then made the most silk of any among us, what profit might be made of it; he answered, that he could make a yard of silk

as cheap as he could make a yard of linen cloth, of eight run to the pound; but moving into a new town, where there were no Mulberry trees, he was obliged to desist; a woman of experience in this business, told me, that, in the short time of feeding the worms, and winding the silk balls, she could earn enough to hire a good spinner the whole year: I have not the least scruple of the informer's veracity, but how far their capacity might serve for an exact calculation I know not.

There are some people that care for none of these things, that will enter into no new scheme, nor take up any other business than what they have been enured to, unless you can promise mountains of gold, and that the colony that engages in it shall immediately be turned to *Lubber-land*. I trust that there are many among us, excited, with a prospect of reasonable gain to themselves and their posterity, of doing publick service to the colony, and what may be useful and acceptable to our mother country, who will, with vigour and application, set forward in that affair, to which we are so kindly invited and encouraged.

We labour under such difficulties to make returns for goods imported, that many have thought it would be best that we should make our own clothes, and by this means lessen our importation, which, indeed, would be better than to run into an endless and irrecoverable debt; but this would make us less useful to *England*, from whom we derive; and from whom we have receiv'd such favours and assistance, when we were surrounded by our encroaching enemies, who were edging down upon us, erecting forts, and destroying
ours;

er's; but as there is a way now open'd for us, by which, if we are not wanting to ourselves, we may not only continue, but increase our importation; for, if the same cost, labour, and time, which we expend in making one yard of cloth, if laid out in raising silk, will procure two yards of the same sort of cloth, and manufactured by more skilful hands, it is easy to see which is the most eligible method; certainly that course which will best serve our own purpose, and render us more useful to the community, is to be chosen.

There are several things to be considered that highly recommend this proposal to our acceptance.

1. That the production of silk, even tho' it should be carried to a great height, will not, in the least degree, hinder our husbandry. Communities have been many times much hurt, by calling off the able bodied men from husbandry, to be employed in mines, manufactories, or other works; this has brought on famine and ruin. The raising silk may, in all its parts, be performed by women, children, cripples, and aged persons; boys may be employed in climbing the trees, to gather leaves, women and girls may feed the worms, he that has the use but of one hand can do good, the aged, those who are past the labour of the field, who are unable to bear the burthen & heat of the day, and have but little remains of strength, may find a pleasure in this easy employment, their prudence & care is necessary in the well ordering the matter, taking care of the children, who are prone to inadvertency & idleness, & to see that the worms are sufficiently fed, and have their meat in due season; for tho' the work is easy, yet

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there is great need of attention and care, that they have air, and that the worms are kept clean; for the excrement, altho' it be as dry as dust, must be swept off, and cleansed away.

This may serve to alleviate much of the uneasiness of old age, for there is nothing fits so heavy upon the aged, except that's of an ill-spent life, as the doubts and fears of being useless, and burthensome, or of being like a lamp put out: There are also some, who are of such a tender constitution, of such a feeble frame, either by nature or accident, that renders them utterly incapable of hard and laborious service, who would be glad to take refuge in an employment so well suited to their state and circumstances; that so they need not hang as a dead weight upon their relations, or the community.

2. This affair may be of great advantage to the poor, affording them employment at home, or abroad, as it requires no stock to set up with, except virtue and diligence; other business needs so much for stock, that many cannot reach it; but, for this business there is nothing wanting but the spawns, or eggs of the worm, a chamber or garret for their reception, and Mulberry leaves for food: There are few among us but what have some land, and consequently may have some trees, but if they have none, when these trees will be as plentiful as they should be, that person is an hard man indeed, that will deny a poor neighbour a few leaves, which, if not gathered will be driven away with the wind.

3. Another advantage, attending this business, is, that if we raise never so much, there is no danger of over stocking the market; which will be evident

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to all, who consider the great importation of wro't, and unwro't silk, into *Great-Britain*, from *Persia*, and *Italy*, (some years from *Piedmont* only, to the yearly value of two hundred thousand pounds Sterling,) and the vast numbers of people in *England* employed in that manufactory. Dr. *Burnet* informs us, that in the reign of *Queen Ann*, there were no less than three hundred thousand, employed in that branch of business; and I have been informed it is still increasing. A sufficient and invincible market, & to one port, is a great advantage; *Virginia* finds it so, even tho' their tobacco is but one Penny per pound, to the planter: It is not so with regard to our product, which is principally provisions; we glut the markets every where; if we hear of a market, if we can come at it by land, we run, ride, and drive, till we have overstocked it; by sea we are all afloat, sailing till provisions may be purchased cheaper there, than at home.

Not long since, I took notice of a dissertation, in one of the Magazines; the general design of that piece was, to shew; that the extensive, uninhabited, parts of *North-America* ought to be so planned, and settled, that every planter should have several thousand acres of land, to enable him to become usefull; and that this is the sure way to render those countries eminently beneficial, to our mother country.

He observes, that *New-England*, as to their manner of settlement, course of business, way of living together in towns, being similar to that of *England*; therefore he concludes, that we can be but of little service, to *Great-Britain*.

I must take leave, to differ from that polite

writer, and retain a good opinion of our tenure of land, and manner of settlement, as being divided into small freeholds; as it is an arduous work, to clear land, overgrown with wood, and drain land, immersed in water, and bring it into a state of fertility; and as nothing will inspire men with resolution, to undertake, and patience, to persevere, like the pleasure, and advantage, of having a right to call it their *own*.

When people have a clear prospect of support for a family, they will marry young; which soon fills a country, and renders them able, in a little time, to plant a new colony, as large as their own: This advantage, in manner of settling, together, with the obligation that all are under to enrol their deeds of land, makes the old proverb truly availing, *Buyer look to*. These advantages have greatly contributed to the increase of people. When there is such an increase of those who are under circumstances to get a living; they can, and must, increase the trade of *Great-Britain*, and add strength to the community. *In the multitude of people is the king's honour; but, in the want of people is the destruction of the prince*. A collection of people, in towns, gives opportunity for the exercise of social virtues, are under advantage to enjoy the privileges of society, schools, for the education of children, colleges, for those who are designed for a liberal education; arts and sciences flourish, trade, and tradesmen, increase, a wild and savage behaviour is put out of countenance; as there are no cross purposes, or contradictions in true policy, so it is not to be imagined, that in order to be politically useful, we must

must be divested of so many privileges of society; especially the benefit of social worship: These are advantages not ordinarily enjoyed, in straggling, scattered, distant settlements. Virtue, and order, is the true basis of every valuable, and lasting establishment, of a political nature.

As to the other method, of settling thin, upon large tracts of land, which has been represented as necessary, in a wide and extensive territory, in order to render it useful to *Breat-Britain*; it has been found by experience, that a very large, private property, has been a great hindrance, to the peopling of those parts, of the country, where such lands lye: Is not only an hindrance to the peopling, but also to the improvement of such land, and tends to continue it in a wilderness state; unless slaves, and transported servants, are introduced to subdue, and improve it; by these helps, a great deal of product, fit for exportation may be raised, and sent to *England*. But, as slaves spend but little, there will not be a proportionable demand for *English* goods. It is expected, that what we send, should be in return for goods: People of a free condition, live at an higher rate, spend more, and consequently their demand for goods will be larger: If these free people raise, and export, so much, as to pay for *them*, they will be so much more useful, to the mother country: Farther, these bought servants, and slaves, as they are not constitutional members of the common wealth; so they cannot be rely'd on, in a time of common danger.

But, love for my country, and a zeal for its honour, when represented as insignificant now,

and like to be so for ever, has carried me much beyond my proper bounds, and my first intention.

As we are now of some advantage, so I cannot but hope, that by our fishery, raising silk, and wine, in time, we shall become more abundantly useful to those, from whom we derive, our original.

To this end, as we have but few Mulberry trees, we should increase the number, and as soon as possible. There are two sorts of these trees, whose leaves are used for the food of silk worms; that, which bears the black Mulberry, the other which produces a white berry: If they are not natives of our country, yet, at least they are easily reconciled to our climate; for they are propagated without difficulty, and grow freely without culture, or much care, except securing from the cattle, while they are young, and within reach: They may be propagated several ways; by seeds, for a nursery, in the same way we use to procure Apple trees; but, I suppose, that instead of scattering the whole Mulberries, in the bed of prepared earth, it will be better, to dry the ripe Mulberries, and break them in pieces, which may prevent their growing and coming up in thick clusters, as, I am told, they will do, when planted whole: When these are grown of sufficient bigness, they must be transplanted; or, they may be planted by the side of a fence, by which means they will grow up to an hedge row, and so never need transplanting, which will save time and labour, as also be of advantage to the tree; for transplanting retards the growth for some time.

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Another way of propagating this tree, is, by layers, as it is called; that is, they bend a branch to the earth, and bury a part in the ground; in two years it will have taken root, and may be transplanted: This method of propagation is attended with more labour; all that makes it preferable to any other, is, that hereby we may be certain of female bearing trees; if we have them from the seed, they prove all, or many of them, male plants, which bear no fruit.

A third way of propagating the black Mulberry tree, is, by digging up the young trees, where-ever we can find them, as they grow here and there spontaneously; bring them home, and plant them in convenient places, near our houses, where they will stand the most handy, for feeding the silk worms: Also, I have seen young suckers, growing from the roots of trees, cut down; which, if sever'd from the stump, with some roots belonging to them; and transplanted, may possibly become trees.

I have been informed, that, at a place called *Falkner's Island*, which lyeth opposite to *Guildford*, there are vast numbers of young shoots, which grow with such eagerness, and obstinacy, that, notwithstanding all endeavours to destroy them, the utmost efforts of the proprietors of the island, both by plow and scythe, has been used successively many years, as good hap is, without being able to accomplish it. A number of us here, and in the neighbouring towns, (with leave of the owners,) design to supply ourselves from thence, the next spring; for, I apprehend that this way of transplanting young trees, will

be the most expeditious, to get furnished for the silk trade.

A fourth way of procuring trees, is, by slips, thrust in the ground: I am inform'd, that, if the twigs, or small branches, of the white Mulberry, are set in the ground, altho' they have no roots, yet they will grow. I travelled a mile out of my way, to see a tree that was propagated in this manner; the owner of it bro't it home with him as a riding whip, and, as he was directed, set it in the ground, and in six years time it was become a fine tree, I suppose, would afford leaves to feed a thousand worms, or more; it is possible that the black Mulberry may be propagated in the same manner; if so, it will be the easiest thing in the world to have what number of them we please: If I live, I design, in the spring, to set many slips of the white Mulberry, and a few of the black sort, for a tryal; I apprehend that it will be a good thing to dig the ground, and make it mellow, where you design to set the slips of black Mulberries, and to water them, if there should come a dry time, before they have taken root; as all this will take up but little time and labour, and the consequences are so interesting, I cannot but hope, that many will apply themselves to it, notwithstanding the present state of affairs.

It is a disputable point, whether the black Mulberry leaves, or the white, are the best for silk, but it is certain, either will do well; it will be best to plant of both sorts, that so experience may determine the question. We will see what the learned *Millar* writes on that subject.

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‘ The white Mulberry, is commonly cultivated
‘ for its leaves to feed the silk worms, in *France*
‘ and *Italy*, tho’ the *Persians* always make use of
‘ the common black *Mulberry*, for that purpose;
‘ and I have been assured, by a gentleman of ho-
‘ nour, that hath made tryal of both sorts of
‘ leaves, that the worms fed with those of the
‘ black sort, produce much better silk, than those
‘ fed with the white; but he observes, that the
‘ leaves of the black sort should never be given
‘ to the worms, after they have eaten for some
‘ time of the white, lest the worms should burst;
‘ which is often the case, when they are so
‘ treated.’

By this it seems, that the worms like the leaves
of the black *Mulberry* the best, since they devour
them so greedily.

‘ He farther adds, that the trees designed to
‘ feed the silk worms, should not be suffered to
‘ grow tall, but rather be kept low like an hedge;
‘ and that, instead of pulling off the leaves singly,
‘ they should be sheared off together with the
‘ young branches, which is much sooner done,
‘ and not so injurious to the tree; this way is
‘ much more convenient, and easy, than climbing
‘ tall trees, to gather leaves.’

This quotation is from *Miller's Gardener's Dictionary*, the possession of which valuable book is by
the favour of the learned *Richard Jackson, Esq;* of
London, who will be pleased with having afforded
us instruction, in such a time of need. The white
Mulberry has stood highest in nomination, and
has been most in vogue, in conversation on this
subject; but whether this preference is derived
from

from tradition, or from experience, I cannot tell: having seen no silk of our own production, but what was from the black Mulberry.

These worms will feed freely on lettuce, and the leaves of other plants; but, being thus fed, it is said, that they will yield no silk.

Having considered the subject of planting Mulberry trees, as absolutely and essentially necessary, for the support of the silk manufactory, as being the grand object in view; I proceed to offer collateral considerations, to induce to a vigorous prosecution of that usefull work.

1. That we may order the planting Mulberry trees, in such manner, that they shall spoil no land, nor in the least prejudice our other productions, if we only avoid planting them in our fields, that we design for plowing and tillage, where they will do hurt by shading the ground; in our mowing land, they will do little, or no harm, as we see by our orchards, where we have good grafs, notwithstanding the apple trees, (if they are not set too thick for our advantage, considered as an orchard, which is too often done, to the great hurt of the trees, the fruit, and the grafs.)

2. We are to consider, that, Mulberry trees planted in great numbers, will afford us a supply of fire wood, which is much wanted in our old towns; and in our present course of husbandry, our new towns will, in time, be involved in the same calamity, and be obliged to fetch wood three, four, or five miles; as land carriage is chargeable, it has brought fire wood to be an heavy article in life, and it is an increasing burthen; if therefore

we

we plant our pasture ground with Mulberry trees, at about forty feet distance, especially those lands which are dry and poor, they would yield more grafs, than in their present naked condition ; the trees would break the extreme force of the sun's rays ; in shade there is a condensation of the air, and as the air under a tree is crouded into less room, so the ambient air, which is lighter and thin, it continually rusheth in, which is the reason of that undulation, or gentle motion of air, which we feel in a hot still day, while we stand under a large shady tree ; in this shade the air will be cool and moist, which serves to promote the growth of grafs ; as there is a greater and more extensive condensing of the air in the night, so there is a still greater degree of coolness and moisture, which we call dew ; every one knows how much this contributes to the growth of grafs, in our *southern* colonies, where the land is richer than our's, yet it will not produce grafs equal to our's, in these northern colonies ; I have been told that the land at *Cape Breton* yields more grafs than our's, & that, where there is no winter, there is no *English* grafs, nor will it grow, or abide, if sown.

I have observ'd, that in my dry, poor pastures, where there are some apple trees growing here and there, there grows more grafs under these trees, than in the same extent of ground, where it is all open and exposed to the sun ; is the grafs under the trees four, so that the cattle will not feed upon it at one season of the year ? yet they will at another time, so that we shall certainly have the benefit of it.

Many years past, I saw people on *Rhode Island*,
planting

planting their pasture land with Button wood, and Locust trees; it is high time we should make the same wise provision, and be even wiser, than they, in the choice of our trees; let our's be Mulberry trees, which are, upon all accounts, preferable, for, besides the leaves for silk, I know by experience, that Mulberry trees, a little seasoned, makes most excellent fire wood; and it is a tree of very quick growth, and it hath been lately found, by certain experience, that the white Mulberry will grow from slips or twigs, thrust into the ground; and it is probable, that the black Mulberry may be propagated in the same, easy, manner, so that we may soon raise large plantations of these trees.

3. Another good property in this tree is, that it affords very durable timber; as to this good quality I can say nothing from my own experience, but I have been informed, that it will last, when exposed to all weathers, as long as red Cedar. One of our boat-men told me, that he once carried some Mulberry timber to *New-York*, the people there told him, that it was as good as red Cedar, and gave him a price accordingly. If it be as durable as red Cedar, it is preferable to it, being a much stronger wood; more solid and firm; red Cedar is a weak, brittle timber. The masters of vessels that coast it to the southern colonies, where Mulberry trees are plentiful, say, that they use it as ship-timber, and value it much for that purpose. How useful must this timber be for window frames, and caps for gate posts, for board-fence, and indeed for all sorts of work exposed to the weather? This timber may be very
useful

useful to the joiner, for cabinets, chests of drawers, and tables, as it is of a fine yellow colour, something resembling Manchineel.

4. They are worth planting for shade, ornament and beauty; trees planted in a line, and at proper distances, makes a very beautiful appearance. In *Italy*, where they raise so much silk, in planting Mulberry trees, they not only consult their profit, but their pleasure too; for travellers say, that all the road from *Verona* to *Padua*, is extremely pleasant, being planted with white Mulberry trees, in fine ranges on each side the way, which charms and diverts in a very pleasing manner. If a row of Mulberry trees were planted on each side of the country road, at equal distance, how agreeable would this be to the sight, and how useful to all? This might be done at the publick expence, or by agreement, each man planting a range as far as his lot extends. I observ'd at *New-Haven*, they have planted a range of trees all round their market place, and secured them from the ravage of beasts: This was an undertaking truly generous and laudable; it is a pity these were not Mulberry, instead of Button wood, and elm: As there is room sufficient, I hope, the publick spirit, by which they were animated before, will excite them to plant a range or two of Mulberry trees, within the circuit.

5. The planting of Mulberry trees thick, for a quick hedge, or live fence, may be many ways highly advantageous; for the situation and state of a great deal of the land in this colony is such, that, having neither stone or timber at any portable distance, it must lie waste, as I see a great
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deal doth at *New-Haven* already, and, as timber fails, this difficulty must increase; naked ditches without any hedge row, will not answer; make a ditch in sandy land, the contexture of the earth is so loose, that the bank will soon run down, and fill the ditch to such a degree, as to render the fence insufficient. In clay land the frost will break the cohesion of the parts of such earth, and the rains will wash it down.

To prepare the ground for an hedge row, only plow two furrows, (four will be better,) in plowing, lay these furrows as high as you can, by this means you collect a good body of top earth, upon which plant the twigs or slips of white Mulberry trees; apple trees, planted on such a bank, makes an impenetrable fence; Mulberry trees have never yet been try'd, that I have heard of, but it looks highly probable that it will doo well, for I have observ'd, that those sorts of wood, which will grow from slips, serves the best for hedge rows, as it better bears splashing* or lopping, for that wood which will grow from slips, will live, when there is but little remainder of wood and bark left.

When Mulberry wood, by splashing, is kept low, and made to grow thick, it will render the gathering the leaves, to feed the silk worms, much more easy and convenient; when a boy goes to pasture with the cows, he may bring with him a bag or basket of leaves, so that the worms

* *Splashing*, is chopping a young tree about half thro', at a proper heighth, and bending it down horizontally, along the fence; in a short time it will grow in that position, and may form a living fence.

may be supply'd with leaves, at a mile's distance; as cheap, except the carriage; as if they grew at home, which is an advantage; for every one hath not room at home, for trees to grow on.

6. Another advantage, which we may expect from Mulberry trees, is the fruit; the white Mulberry tree bears abundance more fruit, than the black; in *Italy*, where they abound in these trees, they fatten their swine and poultry with the fruit; the writers say, that the pork raised in this manner, is exceeding good; what is made by this means costs nothing, for the hogs are their own carvers; the flesh raised this way, is a clear gain, like our wood fed pork.

I apprehend that a better improvement of the fruit would be, to make artificial wine; what is now made in the country is from cherry's, and currants; but, as this fruit is sour, it requires a great deal of sugar to make it good, which is an heavy weight upon that manufacture; but as the juice of Mulberry's is very sweet, especially the white sort, I cannot but think, that from these, very good artificial wine may be made, without any, or with very little sugar; what is sweet has a spiritous strength, in proportion to the degree of sweetness; honey will make strong metheglin, and molasses makes rum. The white Mulberries are small, so it must be slow work to gather them by hand, if therefore you spread matts or sheets underneath, and shake them down, it will be an expeditious way.

From these collateral considerations we have sufficient argument to induce us to plant these trees, preferably to others, even if the grand ob-
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ject were out of question; but, as the article of silk is capable of being enlarged, and extended, as far as we please; (for, as they raise no silk in *England*, but manufacture a great deal, and there are so many employ'd in that work, that the number would seem incredible to those who do not know, or consider, that in *Great-Britain* there are supposed to be eight millions of people;) there is no danger of overstocking the market.

If it should be allowed that raising silk is not so gainful as has been supposed, yet it is a good sort of gain, it will pay for what we want as well as silver and gold, and, it being capable of such great enlargement, renders it highly inviting.

Sir William Temple observ'd, that money, in *Holland* was but three *per cent* interest; he enquired of the great merchants, why they did not hire that money, and turn it into trade? their reply was, because their trade, in all its several branches, would neat, or yield clear profit, but three *per cent*, and there was the risk besides; if so, saith he, how comes it to pass you are so very rich? they reply'd, that it was from the largeness and extent of their trade. We also have this farther encouragement, that it has been found by experience, that the *American* silk takes a good dye, it both takes and keeps the dye well, which cannot be said of the silk of every country.

Sir Thomas Lombe, that eminent throwster, who erected the great engine in *Derbyshire*, (a wonderful structure, consisting of twenty-nine thousand five hundred and eighty-six wheels, all set a going, and continued in motion, by one single water-wheel,) for working silk with expedition and suc-

cess,

cess, declared in *Parliament*, that the *Turkey* silk could not be wrought in his engine, but that the silk from *America* answered very well, and that, if enough of it could be had, they should not be obliged to lay out so much of the nation's money, for raw silk, from *Italy*. These two facts are very much in our favour, which should excite us to a speedy propagation of trees; for there is scarce any part of husbandry, which yields more clear profit, from small cost and labour, than planting useful trees: To instance in the apple tree, a tree well known; fifty young trees we will call twenty shillings, and one day to plant them, is two shillings, for interest of the money ten years, twelve shillings, and six shillings for pruning the trees; at the end of ten years, adjoining land of equal goodness, with that planted with trees, and of equal quantity, that, planted with trees, shall sell for more than double to that which has no orchard upon it; in this case, the advance price, deducting the expence, or prime cost, is a clear gain. Nay, I have known land, only from the advantage of being planted with apple trees, sell for three times the original value of the land. And we know, by experience, that a Mulberry tree improv'd for silk, will yield more profit than an apple tree of the same bigness. Yet, after all, men will neglect to plant, for fear they shall not live to enjoy it; but the good husband man waits for the precious fruits of the earth; such neglect indicates a meanness of spirit; we are not made for ourselves only, but for society and posterity: I have met with it somewhere, that the *Dutch* require, as previous to a young man's marriage, that he produce a cer-

tificate of his having planted a certain number of useful trees, to be as a pledge or security, to the community, for the future support of such children as shall be introduced into the commonwealth by him; if a father should give his daughter half an acre of land, covered with Mulberry trees, it may possibly be equivalent, to her being supply'd with wool and flax, both for herself and posterity, so long as the trees should last: How long these trees will last, I do not know, I have one, at a distant farm, now alive, which I have known more than fifty years, and it looked like an old tree when I first knew it, it has been lopped, and has grown out a-new; it is probable, that by this means we might make them last long.

7. There is one thing farther that may be an inducement to plant these trees; as such groves are proper places for retirement, study, and meditation; this will have weight, with those, who love contemplation, those who are wise and good; he that is not company for himself, when alone, will be none of the most pleasing, or edifying company for others; shallow minds, who have no fund for their own entertainment, will afford but poor entertainment for others. The loneliness of a grove, the solemn shade, the soft murmur of the air, in the tree tops, all conspire to sooth our passions, calm the perturbations of the mind, recover our fleeting, wandering thoughts, and fixing them on proper objects; here is true pleasure and serenity, beyond all that pomp and noise can give; surely it is not without foundation, that in all
ages

ages and countries, trees and shady groves have been the favourite subjects of poets, both heathen and divine: It is needless, and it would be endless to recite what has been written on this darling subject; but I cannot forbear turning to one passage. *Isa. lv, 12.* the beauty of which has not been taken notice off. *The mountains and hills shall break forth before you, into singing, and all the trees of the field shall clap their hands.* This is expressed with a grandeur and dignity well adapted to the sublime subject, and is truly exalted and poetical.

The garden of *Eden* was furnished, not with palaces, but with a great variety of trees; here was original beauty, and primitive grandeur. *Abraham* entertained his heavenly guests under a tree: *Abraham* shewed the esteem and regard he had for trees, when he made a purchase of *Ephron*; he took care to secure the trees, for he bought the field and the cave that was therein, and all the trees that were in the field, that were in all the borders round about, were made sure. *Gen. xxiii, 13, to v. 19.*

We have here an abstract of the oldest deed of sale in the world. Who-ever reads the whole with attention, if he is a lover of antiquity, will be fill'd with admiration, to find an instrument of such an ancient date so complete, both with regard to the essential, and circumstantial parts.

And we may further observe, that *Abraham* planted a grove in *Beer-sheba*, and called there on the name of the LORD, the everlasting God. *Gen. xxi, 33.*

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In after times these places were multiplied, and some of them became places of great fame and resort; as that at *Sichem*, *Josh. xxiv, 26. Mispah, Bethel, Gilgal*: The Jewish writers, *Philo, Josephus, and Epiphanius*, tell us, that they were places walled in, and planted with trees in places of retirement, and on mountains, hence they were called high places; these were in use, and continued from age to age, for we read of them in the *New Testament*, they were called at that time *Proseucha*, or places of prayer. It is said, of our Saviour, that he went out into a mountain to pray, and continued all night in prayer to God, in the *Proseucha*, as *Dr. Doddridge* renders it, in the oratory, or place of prayer. *Luke vi. 12. So Acts xvi, 13.* Agreeable to what has been said, we read: *And on the Sabbath he went out of the city, by a river side, where prayer was wont to be made, a Proseucha, or place of prayer.*

But, you will say, did not these groves and high places become an execration, and the very scenes of idolatry, so loudly complained off? True, the best thing may be prostituted to the worst purposes; the house of prayer was converted to a den of thieves; nevertheless, our Saviour, we see, made use of one of these groves.

Christ saith to Nathanael, I saw thee under the figtree.

I do not remember that the Mulberry tree is mentioned more than twice in the Bible, and then on the account of two remarkable incidents, *2 Sam. v, 24. Let it be when thou hearest the sound of a going in the tops of the Mulberry trees, that then thou shalt bestir thyself. Ps. lxxxiv, 6. Who passing thro'*

thro' the valley of Baca, make it a well; that is the valley of Mulberry trees. I cannot but hope, that in time, this, which is now proposed, may become an extensive, and flourishing branch of trade, * although my great age excludes all expectation of living to see it; I shall think myself happy, if in this or any other way, I may contribute in the least degree, to promote the good of my country.

God is graciously pleased to meet us with instruction, in the several parts of husbandry, even in this of trees. *Every good tree bringeth forth good fruit, but a corrupt tree bringeth forth evil fruit. Every tree that bringeth not forth good fruit, is hewn down, and cast into the fire; wherefore by their fruits ye shall know them. The ax is laid to the roots of the trees.* Let us so conduct us, that we may be called *trees of righteousness, and plants of renown, and have our fruit unto holiness, and the end everlasting life.*

* By a late account, from Georgia, it appears, that the silk manufactory is in a flourishing way. In the year 1757 the weight of silk balls, received at the filature, was only 1052, last year produced 7040, and this year already above 10,000, (1759) and it is very remarkable that the raw silk, exported from Georgia, sells at London, from 2 to 3 shillings a pound more, than that from any other part of the world.

† A.D. 1758

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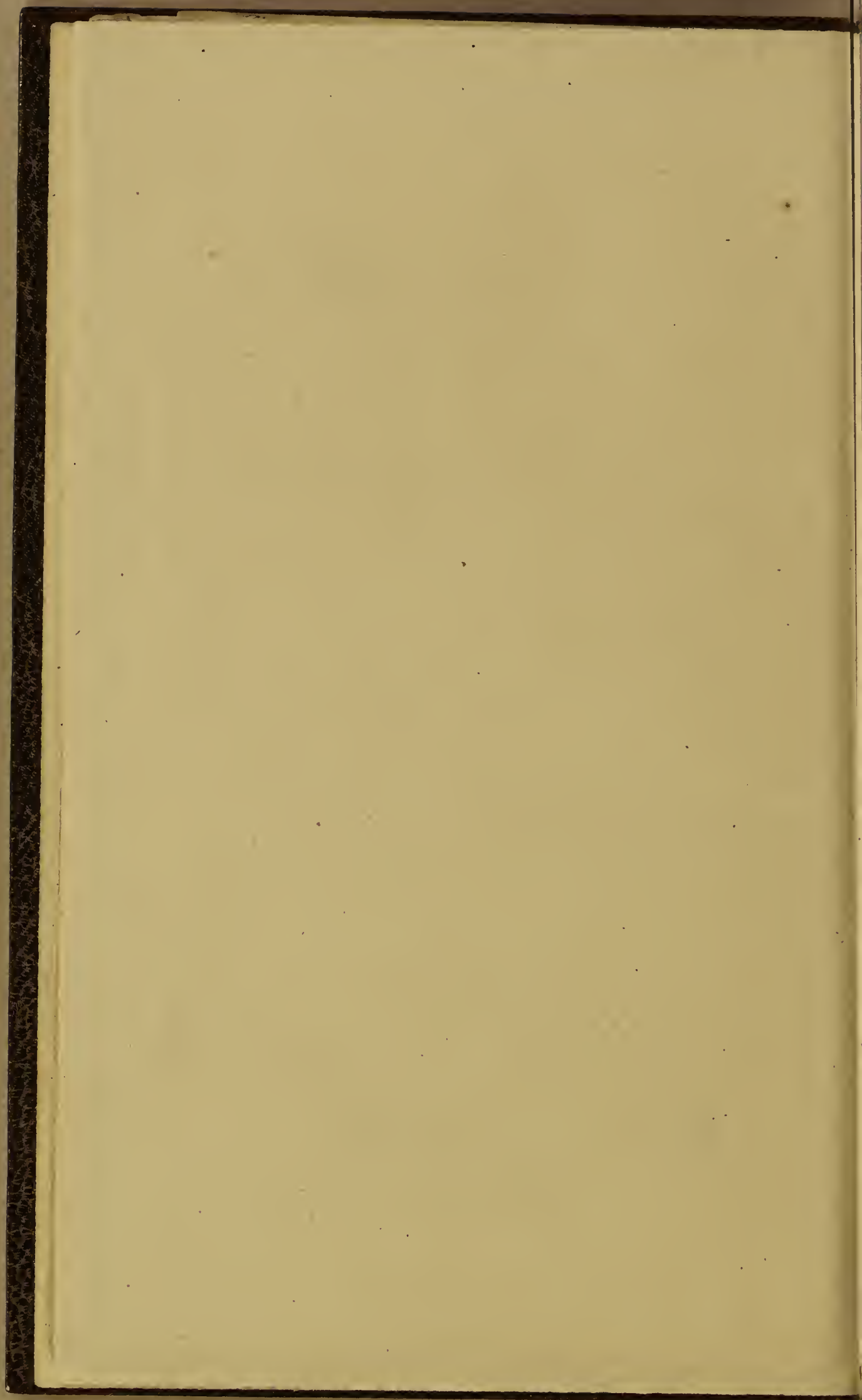
AS the silk balls contain, some of them male, and others female worms; and as some persons have already suffered, by saving for seed, mostly male worms, it has been to their great disappointment; for, if they have but few eggs, they can have but few worms, which must frustrate their whole design, for one year at least. Since the above written I have been well informed, that, to avoid this fatal inconvenience, you must save an equal number of those which are oval, or oblong, with those which are quite round, for one sort contains the male, and the other the female; the female only produce the eggs, and the male are necessary to impregnate the female, in order to continue the breed.

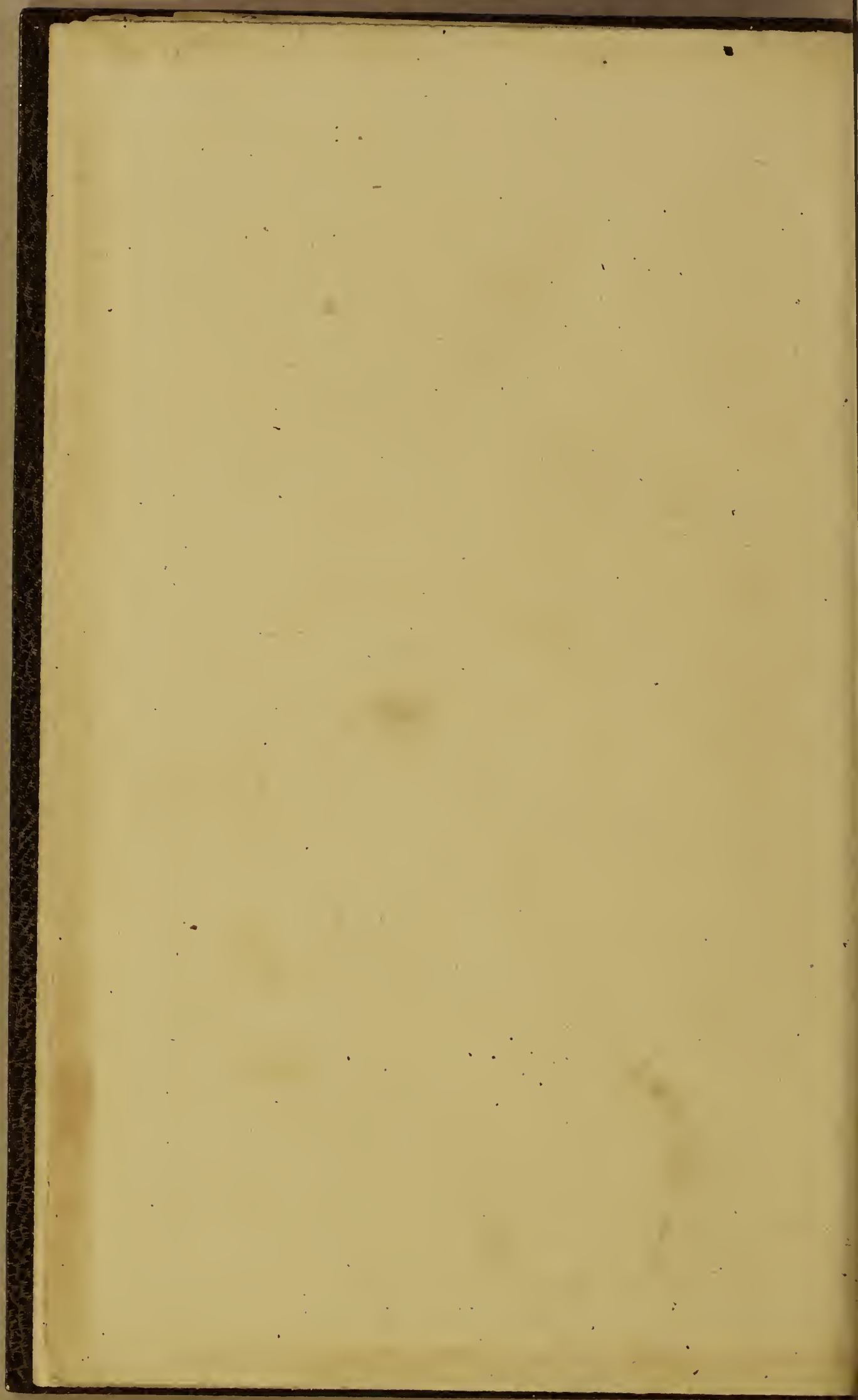
The book was written in winter, and now, June 12, I am able to assure the reader, that many of the Mulberry slips, or twigs are now growing, which I set this spring, both of the white and black sort. If the slips are bruised at that end which is set in the ground, it may promote their taking root.

In page 24, line 3, from the bottom, remove the comma after *frames*, and place it after *caps*.

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